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To Dr. J. G. Finley
With kind regards
from Rob. H. Craig.

A BRIEF CONSIDERATION OF EMPYEMA OF THE ACCESSORY
CAVITIES OF THE NOSE.

BY

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A BRIEF CONSIDERATION OF EMPYEMA OF THE ACCESSORY
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The subject of diseases of the accessory cavities of the nose has been considered in medical literature for over two hundred years, but it is only within this last decade that the pathological anatomy has been thoroughly worked out by Zuckerkandl, Grünwald, Hajek, and other continental teachers, who have thus established a firm foundation and enabled the surgeon to form an accurate diagnosis in such cases.

I do not propose to go deeply into the subject this evening but simply to refer to some of the more important features. When pus is found in but one side of the nose, and after excluding syphilis, tubercular ulceration of the nasal mucosa, and the presence of foreign bodies, the probability is that one or more of the accessory cavities is diseased. Parosmia is a very frequent subjective symptom, the objectionable odour so frequently complained of by such individuals may only be subjective or it may cause offence to others this being dependent upon the amount of destruction present. On examination of the nose, if the antrum of Highmore, the frontal cavity, or anterior ethmoidal cells are affected, pus is usually found in the anterior third of the middle meatus in the region of the hiatus semilunaris and if an accessory opening exists in the inferior meatus, pus will be found in this situation. It will be readily understood if one will only bear in mind the normal openings of these three cavities why pus should appear in this situation, for the aperture of the maxillary antrum is situated in the posterior part of the hiatus semilunaris under the anterior end of the middle turbinal. The most constant opening of the anterior ethmoidal cells is situated between the ethmoidal bulla and the anterior insertion of the middle turbinal, that of the frontal cavity in its most dependent part, and leads into the nasofrontal duct which opens into the uppermost part of the hiatus semilunaris. The diagram below shows clearly the respective openings of the frontal, anterior ethmoidal, and the antrum of Highmore.

The opening of the posterior ethmoidal cells is in the spheno-ethmoidal recess and that of the sphenoidal cavity in its anterior wall. The size of the latter opening varies but is always situated in the anterior wall, the distance of the aperture from the anterior nasal spine being

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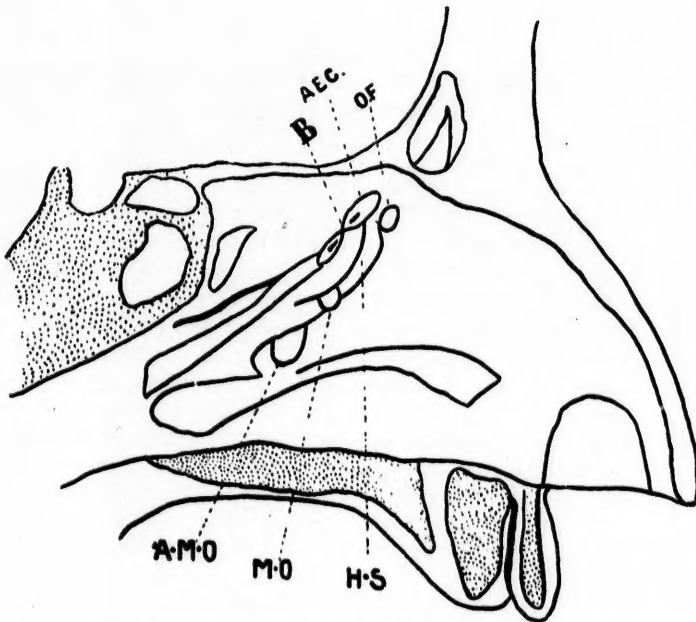


Diagram showing the left lateral nasal wall after resection of the inferior and middle turbinals.—(From Zuckerkandl's *Anatomie des Nasenhöle*.)

- O. F. Inferior opening into naso-frontal duct.
- A. E. C. Opening into the anterior ethmoidal cells.
- B. The ethmoidal bulla.
- H. S. The hiatus semilunaris.
- M. O. The maxillary opening into Highmore.
- A. M. O. The accessory maxillary opening.

from 8 1-2 to 10 centimetres in the male and 7 1-2 to 8 1-2 in the female.

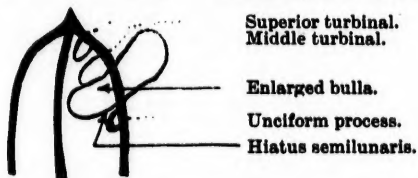
Pus originating from either of the above cavities appears between the posterior third of the middle turbinal and septum, or in the choanal or vault of the pharynx, frequently appearing in the form of dry crusts in the last named situation.

Empyema of the nasal cavities is often accompanied by swelling of the nasal mucous membrane particularly that portion which covers the hiatus semilunaris, the unciform process, and the inferior and outer surface of the middle turbinal. Grünwald considers that a polypoid condition of the middle turbinal is always indicative of empyema of one or more cavities, but Schmidt's, Chiari's and E. Frankel's observations do not confirm Grünwald's assertion.

The frequent symptoms of referred pain in the so-called cases of facial

neuralgia, is often caused by pressure of the secretion in the antrum upon the branches of the trigeminus; and in closed empyema, as the result of the accumulation of secretion, distention of the walls of the cavity often occurs. The cavity of the antrum in such cases becomes round in form, and if the tension is not relieved, bulging of the inner or anterior wall is noticed, or there may be bulging over the hard palate, recognised by the presence of a soft fluctuating tumour situated at the roof of the mouth. Further observations must prove whether the cases described by Weichselbaum, Grünwald, Manchot and others, in which peritonitis and perichondritis of the thyroid cartilage were associated with empyema of the antrum of Highmore, were caused by a direct infection from the latter cavity; or whether these localized inflammatory areas were local manifestations of a general infection.

On examination of the nose in cases of closed empyema of the ethmoidal labyrinth one frequently finds dilatation of the ethmoidal bulla and atrophy of the middle turbinal due to pressure upon it by the enlarged bulla as shown roughly in the accompanying diagram.



The bulla is sometimes congenitally dilated, but in such cases both bullae participate in the enlargement. Again, the middle turbinal may become enlarged and present a bowl-shaped appearance. Such enlargement must be differentiated from the condition first described by P. Heyman, in which an isolated ethmoidal cell, frequently found in the anterior third of the middle turbinal, becomes dilated owing to occlusion of its duct. And, finally, when the whole ethmoidal labyrinth is diseased complete dilatation of the inner wall may occur. In such cases a tumour will be found which fills up the olfactory portion of the nose causing deviation of the septum to the opposite side and with its resulting symptoms.

A very suggestive external symptom of distention of this cavity is displacement of the eye downwards and outwards, due to pressure of the paper plate upon the tissues of the orbit, or rupture of the plate and evacuation of the contents of the cavity into the orbit. The possibility of the infection of the meninges by the blood current or by rupture of the cribriform plate must not be overlooked. When there is occlusion of the naso-frontal duct with accumulation of secretion within the frontal cavity, dilatation, if it occurs, usually appears at the inner angle

of the eye or upwards and outwards at the base of the nose. Dr. Carl Theodor of Bayern, Germany, reported a case in which the bulging appeared at the inner angle of the eye and was of a hard ivory-like consistence, and it was not until after operation that empyema of the cavity was recognised. Meningitis is not an infrequent sequela of closed empyema of this cavity.

Very little is known regarding the symptoms of distention of the walls of the sphenoidal cavity, but pressure on the optic nerves, which lie on either side of the cavity, may be followed by atrophy and consequent limitation of the field of vision. It is also possible for perforation to take place through the vault of the pharynx in such cases.

One could enumerate many other evil effects caused by empyema of the nasal cavities but those mentioned will suffice to impress upon the practitioner the importance of an early diagnosis.

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